Substance Abuse and Need for Treatment Among Juvenile Arrestees (SANTA) in Utah

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ACKNOWLEDGMENTS

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INTRODUCTION

Research suggests that many criminal offenders have extensive experience with drug use and that drug users commit an enormous number of crimes. Drug use magnifies the extent of their criminality. A 1986 study found that the number of heroin-using offenders committed 15 times more robberies, 20 times more burglaries, and 10 times more thefts than offenders who do not use drugs (Chaiken, 1986). Studies conducted among heroin users in Baltimore (Ball et al., 1983) and New York (Johnson, 1986) demonstrated that active drug use accelerates the users' crime rate by a factor of four to six. Moreover, as the addiction level increases, so does the frequency and seriousness of criminality (Speckart and Anglin et al., 1986).

In 1991, half of all state prisoners reported using illegal drugs in the month before their offense, while one in four offenders convicted for burglary, car theft, and other property crimes said they had committed the crime to obtain money to buy drugs (Dept. of Justice, 1993).

The Drug Use Forecasting program (DUF), which has been testing arrestees for the use of illicit drugs since 1987, indicated that the proportion of substance abusers in the arrestee population has never fallen below 60 percent and has been as high as 85 percent (Wish and O'Neil, 1989; National Institute of Justice, 1994).

Drug abuse is also widespread among the two million juveniles arrested annually. According to the 1996 DUF report, which now collects data on juvenile arrestees from 12 sites, the percentage of juveniles testing positive for at least one drug ranged from 38% (Portland) to 63% (Cleveland). The percentage of male juveniles who tested positive for marijuana increased from 41% in 1995 to 52% in 1996.

Since Utah does not currently participate in the DUF program, the data on this high-risk, high-use population has not been available until this year. The Substance Abuse Need for Treatment among Arrestees (SANTA) study, funded by Center for Substance Abuse Treatment (CSAT), is filling the gap in knowledge about this special population. This study was one of three components of the State Demand and Needs Assessment Study. The purpose of the SANTA study was to estimate the need for publicly funded substance abuse treatment among the juvenile arrestee population in Utah. With that goal, the Division of Substance Abuse conducted the SANTA study at the Salt Lake Detention Center and the Farmington Bay Youth Center.

METHODOLOGY

A sample of 197 juvenile arrestees was selected from the Salt Lake Detention Center (SLDT) and the Farmington Bay Youth Center (FBYC) to participate in this study. The survey was carried out between April, 1996 and November, 1996. The arrestees at the selected facilities were approached and interviewed by trained interviewers. Detainees were told that participation in this study was voluntary. Interviewers offered incentives such as juice boxes or candy bars to participants who consented to the interview.

Eligibility was restricted to youths arrested less than 48 hours prior to interviewing. This study used a modified computerized AutoSANTA-J program, developed by the Center for Substance Abuse Research (CESAR) and the National Technical Center (NTC), to collect data. This instrument determines treatment need using diagnostic questions based on DSM-III-R criteria. Following the interview, urine specimens were requested. A total of 195 participants provided the specimens. The urinalysis was done by PharmChem Laboratory.

FINDINGS

Sample Characteristics

Juveniles in this sample ranged in age from 12 to 18. Most arrestees (79%) were still attending school while 20 percent were drop outs. About eight percent of the arrestees were employed either full time or part time at the time of the survey. Only 15 percent of the juveniles resided with both parents and less than half (45%) were living with one biological parent. Forty percent had three or more sex partners during the previous year. Twenty four percent reported spending $25 to $100 or more each week to support their drug habit. The majority (64%) of the juveniles were arrested for a misdemeanor offense. Almost 23% were charged with property crimes and 16% with violent crimes.

Prevalence of Substance Use

Marijuana and alcohol were the two most widely used substances by juvenile arrestees in this sample (Table 2). Both life time and current use of those substances were very high. Marijuana use seems to be higher and appears to be the drug of choice among this population. LSD and cocaine were the third and fourth most prevalent drugs among the juveniles in this study, although past 30-day drug use was slightly higher for cocaine (19.8% vs. 14.7%). Less than 3 percent reported use of heroin in the last 30 days, however, eight percent of juveniles admitted using black tar heroin in their lifetime (Table 5). When asked about their perception on current heroin use, more than half of the juveniles perceived that smoking and snorting heroin is currently increasing.

Test Results

More than one-quarter (26.7%) of the juveniles tested positive for at least one drug (Table 6). A majority of the positive tests were accounted by marijuana (22.1%). However, self reported use of marijuana in the last three days was higher than was detected by urinalysis (34% vs 22.1%, Table 7). It is likely that the longer length of time between arrest and urinalysis could have lowered the probability of testing positive. Cocaine accounted for next highest with five percent of the sample testing positive for this drug. Only three percent tested positive for amphetamines. Male juveniles had more positive drug tests than female juveniles (Table 9). Those who had three or more sex partners in the last year were more likely to have positive drug tests than those who had no sex partners. The drug test results did not vary by school status and living arrangement.

Early Initiation

This population reveals initiating substance use at an extremely early age. More than one-quarter (28%) reported smoking cigarettes before their 9th birthday (Table 4). Alcohol was initiated at an average age of 11. The use of marijuana was most likely to be initiated at age 12, and opiates, cocaine, and hallucinogens at age 14 (Table 10). This clearly depicts the theory of progression or developmental stages in adolescent drug use. According to this theory, adolescents' involvement in drugs begins with alcohol, progresses to marijuana and finally to the third stage of "hard" drugs (Kandel, 1975). The average age of drug injection tended to begin early among the arrestees (14 years). However, caution is advised when drawing conclusions, since only 7% of the juveniles reported injecting drugs in their lifetime. Several studies have found the average age of initial intravenous drug use to be in the late teens (Graham and Wish, 1994) and early 20s (Kang et al., 1993) while the average age of this study sample is less than 16 years.

Problem Behavior

Juveniles admitted behavioral problems due to substance use. Fourteen percent reported that alcohol and marijuana use caused them to give up things they like (Table 12). Among the youths in the sample, marijuana caused more problems than alcohol with regards to missing school/work, suffering grades, and driving under the influence. One in five (20.5%) went to school high on marijuana compared to 13% who went to school drunk. On the other hand, 15 percent said that they got depressed, sad, or more irritable because of alcohol but only 11 percent attributed these symptoms to marijuana. They also acknowledged that the majority (87%) of their friends use alcohol and marijuana. This particular finding appears to support Sutherland's "differential association" theory. According to this theory, a person's behavior is influenced by the behavior pattern of the group with whom he/she mostly socializes.

DSM-III-R diagnosis of Dependency

The DSM-III-R category for substance dependence specifies nine criteria for substance use . A diagnosis of substance dependence is based on an individual's meeting any three of the nine criteria. The treatment need can be inferred from this dependence. Close to a half (47%) of the juveniles met the criteria for dependence based on DSM-III-R on any substance. Marijuana, followed by alcohol, accounted for the majority of dependency. About 29 percent were dependent on marijuana, 19 percent dependent on alcohol, 7 percent dependent on cocaine and another 7 percent on hallucinogens (Table 13). In most cases, juveniles failed to realize their dependency. Only 10% perceived their dependence which is in sharp contrast with the diagnosed dependence (figure 2). Consequently, more than two thirds of those juveniles (>67%), who were diagnosed as "dependent", neither realized the need for treatment nor were in treatment. Less than 20% of those diagnosed as dependent had access to, and received, some kind of treatment in the past (Table 16). Drug dependent juveniles were less likely than alcohol dependent juveniles to acknowledge their substance abuse problems or treatment needs. This tendency to underestimate their addiction among juveniles addicted to drugs could be due to fear of negative labeling (stigma). This also depends on their attitude toward treatment providers, and belief that professional help is relevant to the problem at hand.

The youths may not believe that their drug use itself is problematic (Angling and Hser, 1990).

Site Variation

Data by site were also analyzed. Overall, a larger percentage of detainees at Farmington Bay Youth Center (FBYC) admitted past month use of illicit drugs than detainees at Salt Lake Detention Center (SLDT) (Table 18). Past 30 day use of marijuana, mushrooms, crystal methamphetamine, and LSD were much higher for FBYC than SLDT. On the other hand, the lifetime use of marijuana, cocaine, and inhalants were higher for SLDT. Half of the detainees interviewed at FBYC met the criteria for dependence and demonstrated treatment need. Slightly fewer percentage of SLDT juveniles (45%) were diagnosed as dependent. The largest differences in the percentage of dependence were observed in hallucinogens (Table 19). Anecdotal information from local youths suggest that they perceive the use of naturally grown substances (such as mushrooms) as "less harmful" for the body -- it is provided by nature and considered as safe.

Predictors of Alcohol and Drug Dependency

Factors that may predict the development of substance abuse dependency were also examined in a regression model (Table 20). Factors included in the model were gender, age, race, school status, living arrangements, and age of first alcohol use. Gender was the only variable found to be statistically significant. The result suggests that juvenile males are about 2.5 times more likely to be alcohol dependent than females ($p<.05$). Though not significant, the model also indicated that arrestees who live with both parents are 1.7 times more likely to be alcohol dependent than those living with others. This particular finding was interesting because other studies have found that youths living with both parents are less likely to use substances than those who live in other family structures. This observation of high use rate among juveniles who live with parents could be due to parental use of substances and parental approval towards substance use.

CONCLUSION

As a recipient of this Center for Substance Abuse Treatment (CSAT) award, the Division conducted the SANTA study as part of the State Demand and Needs Assessment Studies. The results presented here clearly indicate significant use of illegal substances among the juvenile arrestee population in Utah. The policy implications derived from these findings are discussed below.

1. Treatment Resource Allocation:

The information gained from this study is extremely valuable for understanding the extent of drug use, abuse, and associated treatment needs among the arrestee population in Utah. This is the first time such an endeavor has been undertaken. These findings will help policy makers allocate treatment resources according to needs rather than based on population proportion. These data will also be instrumental in obtaining additional treatment funds to serve this population. Data by site enhances our knowledge about regional variations in drug use among youths.

2. Increase youth access to treatment services:

Despite the extensive drug and alcohol use, the majority of the juveniles in our sample had no experience with any kind of substance abuse treatment. This group would be highly unlikely to seek treatment on their own and without treatment, they are likely to continue their drug use and criminality after release (Lipton, 1995). Strong empirical evidence has been accumulating, showing that treatment lowers crime and health costs as well as the associated social and criminal justice costs (CALDATA, 1994; Lipton, 1995; Harrison et al.,1996). The data reveal that 41% of juveniles spent considerable amounts of money weekly to support their drug habit. These data provide insight for treatment programs and will be shared with other agencies. Sufficient linkages between detention centers and community treatment programs need to be built to make treatment more accessible to youths.

3. Point of location for prevention and treatment:

Although the length of stay of youth offenders in the detention centers is relatively brief, centers should be considered as an opportunity to inform and educate adolescents about substance use and its negative consequences. A majority of the youths in this study failed to realize the extent of their addiction and consequently underestimated their treatment needs. This failure could be due to a lack of knowledge regarding substance abuse and dependence or the fear of stigma attached to drug use and treatment. In either case, intensive attention needs to be given to educate them on these issues. The majority of juveniles in this sample were attending school at the time of study which suggests they could benefit from school-based programs. In addition, staff should be trained to assess and detect early symptoms of drug abuse and to make appropriate referrals.

4. Prevention and interventions should start early:

Prevention programs should start early because of the observed early age of onset of such extensive drug use among this population. Waiting until the high school years may be too late for many serious offenders. By that time, their characters are already formed and often resistant to change. Intervention should begin as early as the elementary school years (OJJDP, 1994). Prevention should focus on delaying the onset of alcohol use because it is considered as the "gate way" to other drugs.

5. Intervention programs must address multiple problem behaviors:

The juveniles in this study experienced multiple problems. They were involved in drug use, criminal behavior, interpersonal conflict, academic failure, sexual activity, and other problem behaviors. Intervention programs should address these related multiple problems and provide services that deal with those issues.

INTRODUCTION

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BACKGROUND

Delinquency and drug use are major problems in American society. Delinquency and drug use relate to each other, with drug use stimulating delinquency more than the reverse. Review of the literature indicates that there is no single cause of delinquency or substance use in juveniles. Instead, many variables correlate with delinquency and many factors tend to increase the risk of later delinquent behavior. Among these risk factors are child abuse and neglect, ineffective

parental discipline, family conflict, lack of bonding, conduct disorder in children, school failure, learning disabilities, negative peer influences, early initiation of drugs, limited employment opportunities, inadequate housing, and residence in high-crime neighborhoods (OJJDP, 1994; Hawkins et al., 1992). However, these studies also caution us not to presume that every child who experiences these risks will automatically become delinquent; many children who experience such risk may never engage in delinquent behavior. Studies have also identified factors that buffer or protect adolescents from risky environments and negative consequences. Youth at risk who have more conventional lifestyles at home, at school, and with friends appear better at avoiding the negative consequences of high risk and high crime neighborhoods. Data from the Rochester Youth Development Study, a long term investigation of drug use and delinquency, found that more than 56% of high-risk youths with six or more protective factors remained drug free up to three years after the protective factors were first measured in the 8th and 9th grades. By comparison, only 20% of high-risk youths with three or fewer protective factors were still resistant to drug use three years later (Thornberry et al.,1995).

Substance Use Among Youths in Utah

Utah has seen a tremendous increase in drug use among youths. Recently conducted studies show the following trends:

- The current use of amphetamines, barbiturates, tranquilizers, cocaine, inhalants, and hallucinogens among Utah high school seniors is similar to students throughout the U.S. but in each case, Utah has a higher rate. Although the difference was not statistically significant, it poses a considerable threat to society when one considers that during a given month more than one in five Utah seniors has used alcohol, 13% smoked cigarettes, one in ten has taken marijuana, one in 20 used amphetamines illegally and 2.5% have taken cocaine (Bahr, 1995). This study also revealed that 38% of 7th-12th graders admitted that they have at least one friend who drinks regularly and that getting marijuana is fairly easy (Bahr, 1995).

- Among youths ages 12-17, use of alcohol, tobacco products, marijuana, cocaine, inhalants, stimulants and tranquilizers has increased from 1992 to 1996. There is little difference between past month and lifetime use of cocaine among Utah youth and U.S. youth (current: 0.6% vs 0.8%, lifetime: 1.9% vs 2.0%). Use of stimulants was much higher for Utah youths than for the nation (2.4% vs 0.5%, lifetime 4.9% vs 2.2%) (Dan Jones & Associates, 1997).

- Utah's Treatment Episode Data (TEDS) reveals that 13% of the total Fiscal Year 1997 admissions were youths. This reflects a three percent increase from last year. Half of these youths are referred by the criminal justice system. The primary drug of choice among youths admitted for treatment are marijuana, followed by alcohol. This year we are observing more admissions for methamphetamine use. This drug is relatively easy to get and is very inexpensive compared to other drugs. This drug is gaining popularity among youth because of its different administration methods (e.g. snorting, smoking, injecting).

Juvenile Crime in Utah

In 1995, 42,386 juveniles were arrested which accounted for 32% of the total arrests in Utah (Crime in Utah, 1995). The juvenile court division reported a nearly 5% increase in total juvenile offenses from 1994 to 1995. There was a 39% increase in marijuana offenses (1,765 to 2,451) and a 22% increase in drug related offenses (2,208 to 2,690) (Crime in Utah, 1995).

In 1996, the total number of juvenile arrests have decreased from 42,386 in 1995 to 40,053 in 1996. However, arrests for drug sales and manufacturing and liquor law offenses have increased from the previous year. Drug sale arrests went up from 110 to 136, while liquor law offenses increased from 3,756 to 4,454 (Crime in Utah, 1996).

Utah's juvenile arrest rate is one of the highest in the country (Hutchings and Smith, 1997). Utah's "street criminals" are the youngest in the nation. Part of the reason for this is that Utah's overall population is disproportionately young. Children under 18 comprise 36 percent of the total population in Utah, compared to 26 percent in the nation (Johnson and Whitaker, 1996). In addition Utah's children are arrested at higher rates than children in the nation. In 1992, Utah children were arrested at the rate of 2,021 index arrests per 100,000 children, a rate 86 percent higher than the national rate (1,089 per 100,000) (Johnson and Whitaker, 1996).

Project Sites

Salt Lake County is the largest county in Utah with an estimated population of 823,411 and an estimated youth (17 and less) population of 272,590 (40% of the state's total youth population). The estimated youth population of Davis County is 79,568 (12% of the state's total youth population). Both counties experienced high economic growth, mobility, and associated risk factors (high arrest rate, perceived availability of drugs, alienation/lack of bonding, friends who engage in problem behavior, early initiation, teen pregnancy) during the last few years. Two detention facilities (Salt Lake Detention Center and Farmington Bay Youth Center) from the above mentioned counties were selected as project sites for this study.

METHODOLOGY

Sample

A sample of 197 juvenile arrestees was selected from the Salt Lake Detention Center (SLDT) and the Farmington Bay Youth Center (FBYC) to participate in this study. The survey was carried out between April and September, 1996 in Salt Lake Detention Center and between August and November, 1996 in Farmington Bay Youth Center. Of the 197 arrestees, 137 were from the Salt Lake Detention Center and 60 were from The Farmington Bay Youth Center. Eligibility was restricted to youths arrested less than 48 hours prior to interviewing. Individuals were considered ineligible to participate if they were in lockup for more than 48 hours.

Instruments

The study used the computerized AutoSANTA instrument that was developed by the Center for Substance Abuse Research (CESAR) to collect the data. This AutoSANTA program is similar in format and is designed to the AutoDUF program developed for the National Institute of Justice (NIJ) by CESAR. This instrument was later modified by the National Technical Center (NTC) to incorporate diagnostic questions based on DSM-III-R criteria to measure treatment need. The AutoSANTA interview consisted of three components:

1) The core DUF interview
2) The DUF Heroin Addendum
3) The NTC SANTA module

The core DUF interview obtains information on participants' demographics, nature of charges, sources of income, living situation, treatment history, drug use patterns, preferred method of drug use, IV drug use, and needle sharing information.

The DUF Heroin addendum collects information on heroin administration, age at first use, frequency of use, availability, street names of heroin, and cost.

The NTC SANTA module collects information on the extent of substance use (marijuana, heroin, hallucinogens, cocaine, amphetamines, tranquilizers, and alcohol), DIS drug diagnosis, and treatment history.

Data Collection Procedures

The survey was carried out between April, 1996 and November, 1996. Three interviewers (one bilingual) conducted the interviews at the project sites. Interviewers were highly skilled in administering the AutoSANTA instrument and experienced in conducting face to face interviews. Participants were told that participation in the study was voluntary. A written informed consent form was given to every respondent, which explained the purpose of the study, his/her rights during the survey, and assurance that information received would be kept completely confidential. Interviewers offered incentives such as a juice box or candy bar to participants who consented to the interview. Following the interview, urine specimens were requested. A total of 195 participants provided the specimens (1% refusal rate).

The urine specimens were analyzed by The PharmChem Laboratory, located in California. They used EMIT to detect recent use of 10 drugs: cannabinoids, cocaine, opiates, pcp, methadone, benzodiazepines, barbiturates, methaqualone, amphetamines and propoxyphene. In addition, positive EMIT results for amphetamine use were confirmed by gaschromatography in order to distinguish amphetamine use from various over the counter medicines.

RESULTS

Profile of the sample

Table 1 provides the sociodemographic characteristics of survey participants. The majority of the arrestees were age 15 or more. Approximately 64 percent of the sample were white, 20 percent were Hispanic, and the remaining 16 percent included African American and other ethnicities. Most arrestees (79%) were still attending school while 20 percent had dropped out. About 8 percent of the arrestees were employed either full time or part time at the time of the survey. Less than half (45%) of the juveniles were living with one biological parent. Forty percent had three or more sex partners during previous year. Twenty four percent reported spending $25 to over $100 a week to support their drug habit. The majority (64%) of the juveniles were arrested for a misdemeanor offense. Almost 23% were charged with property crimes and 16% with violent crimes.

TABLE 1
DEMOGRAPHIC CHARACTERISTICS OF THE SAMPLE

	%	N
Age		
12-14	22.8	45
15-16	49.2	97
17-18	27.9	55
Gender		
Male	55.8	110
Female	44.2	87
Race/Ethnicity		
White	63.5	125
African American	6.6	13
Hispanic	20.3	40
Other	9.6	19
Highest Grade Completed		
8th grade or less	37.2	73
9th-11th grade	59.2	116
12th and above	3.6	7
Current School Status		
In School	78.7	155
Graduated	1.0	2
Expelled/Suspended	2.0	4
Dropped Out	13.7	27
Other	4.1	8

TABLE 1 DEMOGRAPHIC CHARACTERISTICS OF THE SAMPLE (CONTINUED)		
	%	N
Employment/Income Status		
Welfare/SSI	2.1	4
Full/Part-time	8.2	16
Odd Jobs	1.1	2
Unemployed/School	79.0	154
In Jail/Prison	2.0	4
Drug Dealer	2.0	4
Other Illegal	1.1	2
Other legal	4.6	9
Type of Residence		
House	69.0	136
Apartment	14.2	28
Hotel	1.0	2
On the street	3.0	6
Institution	8.6	17
Other	4.0	7
Living Arrangements		
With both natural parents	15.2	30
With one natural parent	44.7	88
With other relatives	8.1	16
Foster/Guardian	15.7	31
Other	16.2	32
# of Sex Partners/Past Year		
None	17.5	34
One	19.6	38
Two	22.7	44
Three	12.2	24
Four or more	27.5	54
Ever Injected Drugs	7.4	14
Weekly Cost of Drug Habit		
Nothing	59.0	111
$1-$24	17.0	32
$25-$99	13.3	25
$100+	10.6	20
Type of Offense		
Misdemeanor	64.0	126
Felony	36.0	71
Charge at Arrest		
Violent Crime (Assault/Weapons/Manslaughter/Robbery/Sex assault)	16.2	32
Property Crime (Burglary/Larceny/Stolen property-vehicle/Damaged property)	22.8	45
Drug Offenses (Alcohol-drug Possession/Sales)	7.1	14
Violation of home supervision/Runaway/Probation	45.2	89
Other (Public Peace)	8.6	17
Project Sites		
Salt Lake Detention Center	70.0	137
Farmington Bay Youth Center	30.0	60

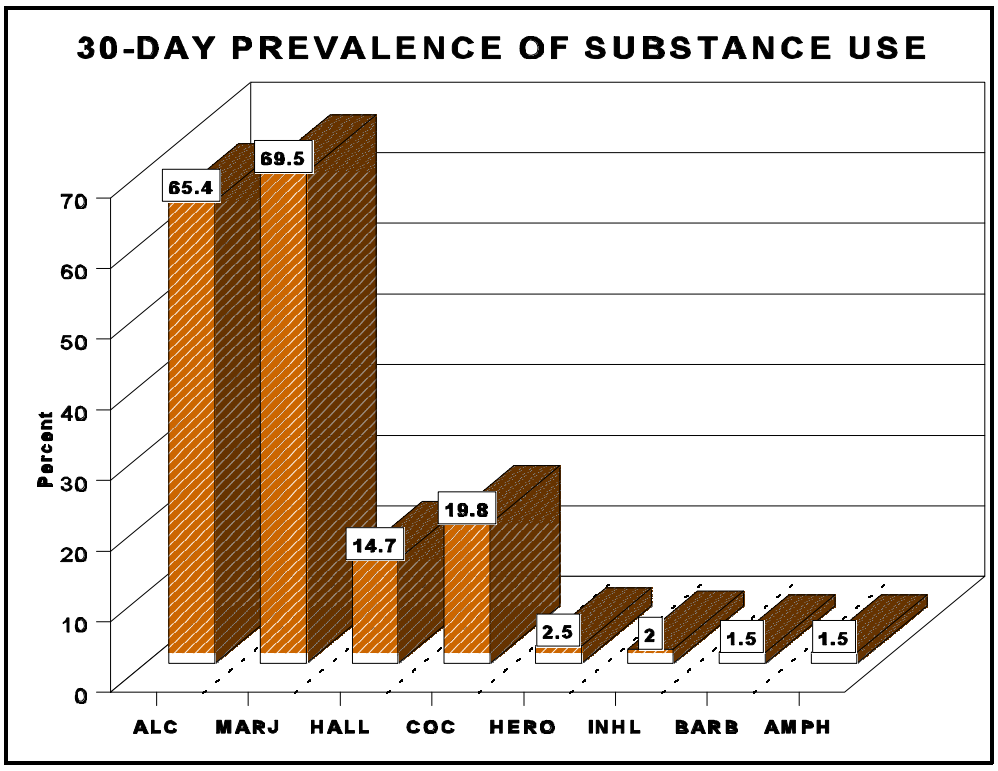
Prevalence of Substance Use

Alcohol and Other Drugs

Marijuana and alcohol were the two most widely used substances among juvenile arrestees (see Table 2). Both life time and current use of these substances were very high. The extent of marijuana and alcohol use were about the same. Marijuana use seems to be higher, and appears to be the drug of choice among this population. LSD and cocaine were the third and fourth most prevalent drugs among the juveniles in this study, although past 30-day drug use was slightly higher for cocaine (19.8% vs. 14.7%). Considering only the last year and lifetime use, amphetamines or uppers were the fifth most prevalent drug. Less than 3 percent reported use of heroin in the last 30 days (figure 1).

TABLE 2
ALCOHOL AND OTHER DRUG USE:
LIFETIME, PAST-YEAR, AND PAST-MONTH

	Ever		Past Year		Past 30 Days	
	%	N	%	N	%	N
Alcohol	94.4	185	90.8	179	65.4	123
Marijuana/Hashish	94.9	186	92.3	182	69.5	130
LSD/Other Hallucinogens	48.0	94	41.6	82	14.7	29
Cocaine/Crack	42.9	84	38.1	75	19.8	39
Heroin/Other opiates	15.8	31	12.6	25	2.5	5
Inhalants	17.9	35	7.6	15	2.0	4
Barbiturates/Downers	3.1	6	2.0	4	1.5	3
Amphetamines/Uppers	33.2	65	29.9	59	1.5	3
Tranquilizers	3.1	6	2.0	4	0.5	1



[Figure 1]

Table 3, on the next page, shows the past 30-day drug prevalence broken out by juvenile characteristics. Only marijuana, alcohol, and cocaine use are presented in the table because they were the most prevalent drugs among juveniles. Findings from these data suggest that:

- Current use of alcohol, marijuana, and cocaine was slightly higher among juvenile females than among males.
- Alcohol was most frequently used among 11-14 year olds, whereas marijuana was more prevalent among 15-16 years olds.
- Cocaine use was less prevalent among the 11-14 year age group.
- Marijuana use was more prevalent among African American youths than other youths.
- Juveniles who live with both parents used alcohol, marijuana, and cocaine more often than those who live with others.
- Cocaine was most prevalent among juveniles who had more than 3 sexual partners last year.

TABLE 3 PAST-MONTH ALCOHOL, MARIJUANA, AND COCAINE USE BY DEMOGRAPHICS			
	Alcohol (%)	Marijuana (%)	Cocaine/Crack (%)
Gender			
Male	64.1	64.5	19.1
Female	67.1	67. 8	20.7
Age			
11-14	67.5	60.0	6.7
15-16	66.0	72.2	18.6
17-18	63.0	60.0	32.7*
Race			
African American	50.0	84.6	23.1
White	62.7	66.4	17.6
Hispanic	72.5	65.0	25.0
Other	77.8	52.6	21.1
Living arrangements			
With both parents	67.9	73.3	26.7*
One parent	63.5	64.8	25.0
Other	66.7	64.6	11.4
Number of sex partners past year			
None	53.3	61.8	17.6
1-2	67.1	62.2	12.2
3+	67.5	73.1	28.2*
*p<.05			

Tobacco Use

Table 4 shows the tobacco use patterns among juvenile arrestees. About 87 percent of the youths used tobacco in their lifetime, and 77 percent used tobacco in the past 30 days. Over one-quarter (28%) initiated smoking tobacco at the age of 9 or below while 52 percent started between ages 10-12. Forty seven percent of youths admitted dependence during ages 13-14, however, only 19.3 percent feel they are currently dependent on tobacco.

TABLE 4 PREVALENCE OF TOBACCO USE AMONG JUVENILE ARRESTEES		
	%	N
Ever tried tobacco	86.8	171
Used tobacco last month	76.6	151
Used tobacco at least 10 days in last month	71.1	140
Dependent on tobacco now	19.3	38
Age first dependent on tobacco		
9 or under	6.1	3
10-12	32.6	16
13-14	46.9	23
15+	14.3	7
Age first smoked cigarettes		
9 or under	28.4	48
10-12	52.1	88
13-14	14.2	24
15+	5.3	9

Heroin Use

The heroin addendum to the AutoSANTA instrument asks arrestees for information particularly on heroin use, method of administration, age of onset, their perception of current trends, street names, and cost. Some of these data are presented in Table 5.

- About eight percent of the juveniles used heroin and black tar heroin in their lifetime.
- The average age of initiating heroin (snorting, smoking, injecting) was 14 years.
- More than half of the juveniles perceive that smoking and snorting heroin is currently increasing.
- One out of ten juveniles knows someone who has snorted heroin.

TABLE 5 LIFETIME USE OF HEROIN		
	Percent	**N**
Ever used Black Tar Heroin	8.1	16
Ever used Heroin	8.1	16
Ever smoked Heroin	7.6	15
Ever snorted Heroin	5.6	11
Ever injected Heroin	7.1	14
Avg. age 1st smoked Heroin	14.3	
Avg. age 1st snorted Heroin	14.3	
Avg. age 1st injected Heroin	13.6	
Know someone who smoked Heroin	15.2	30
Know someone who snorted Heroin	9.6	19
Smoking Heroin is currently:		
Increasing	55.6	109
Decreasing	6.6	13
Staying about same	7.7	15
Don't know	30.1	59
Snorting heroin is currently:		
Increasing	51.0	100
Decreasing	5.6	11
Staying about same	10.2	20
Don't know	33.2	65

Urinalysis Results

Positive drug tests

More than one-quarter (26.7%) of the youths tested positive for at least one drug (see Table 6). Not surprisingly, most of the positive tests were for marijuana (22.1%). Five percent tested positive for cocaine, and three percent tested positive for amphetamines. Only four youths (2%) tested positive for heroin. No positive test results were found for barbiturates, methadone, methaqualone, PCP, and propoxyphene.

TABLE 6 PERCENTAGE OF POSITIVE DRUG TEST FOR DIFFERENT SUBSTANCES BASED ON TOTAL SAMPLE		
SUBSTANCE	%	N
Marijuana	22.1	43
Cocaine	5.1	10
Amphetamines	3.0	6
Methamphetamine	2.1	4
Benzodiazepine (Tranquilizers)	2.1	4
Opiates	2.1	4
Other Drugs (barbiturates, methadone, methaqualone, PCP, and propoxyphene)	0	0
Any drug	26.7	52

Test Results vs. Self Reports

Table 7 displays the drug use detected by urinalysis and self reported use in last three days. It appears that except for marijuana, self reports underestimate the drug use rate. Marijuana was reported more than it was detected by tests. The increased time between arrest and urinalysis can lower the probability of testing positive. This is one of the limitations of urinalysis. Specimens collected within 24 hours of arrest have more chance of detecting positive results than specimens collected later. These data are presented in Table 8.

TABLE 7 LAB RESULTS VERSUS SELF REPORTED USE IN LAST 3-DAY		
SUBSTANCE	TEST POSITIVE %	SELF REPORTS %
Marijuana	22.1	34.0
Cocaine	5.1	4.6
Amphetamines	3.0	1.0
Opiates	2.1	1.5
PCP	0	1.0

TABLE 8 DRUG TEST RESULTS BY HOURS SINCE ARRESTED		
	Test Positive (%)	Test Negative (%)
24 hours or less	33.7	66.3
25 to 48 hours	19.1	80.9
P<.03		

It appears that male juveniles were more likely to have positive drug tests than female juveniles (see Table 9). Those who had 3 or more sex partners last year were more likely to have positive drug tests than those who had no sex partners. The drug test results did not vary by school status and living arrangement.

TABLE 9 DRUG TEST RESULTS BY DEMOGRAPHICS	
	Percent
Gender	
Male	30.0
Female	22.4
Age	
11-14	8.9
15-16	32.0
17-18	32.1
Race/Ethnicity	
African American	46.2
White	28.5
Hispanic	22.5
Other	10.5
Currently in school	
In school	26.5
Not in school	27.5
Living arrangements	
With both parents	26.7
Other	26.7
Number of sex partners past year	
None	17.6
1-2	23.2
3+	33.8

Substance Use and Problem Behavior

Initiating behavior: Age of first use

The DUF module asked the respondents the age at which they frist started to use substances and the age at which they became dependent. The mean age of first alcohol use and other substances are shown in Table 10. Data show that youth arrestees initiated the use of cigarettes and alcohol at a very early age (11 years). Marijuana, inhalants, and downers were most likely to be initiated at ages 12-13. On the average, the youths reported using uppers, tranquilizers, opiates, cocaine, and hallucinogens beginning at ages 13-14. The average age of drug injection tended to begin during the early teen-age years (14 years). Dependence on marijuana in this population occurred during the early teens and dependence on other illicit drugs began later. No gender differences were observed in the mean age of onset for alcohol, marijuana, tobacco, and heroin. However, it appears from the analysis that female arrestees initiated use of inhalants and cocaine earlier than male arrestees (see table 11). This early initiation was not statistically significant.

TABLE 10
SELF REPORTED DEPENDENCE AND MEAN AGE OF FIRST USE FOR DIFFERENT SUBSTANCES

Substance	Years
First tried	
Alcohol	11.2
Smoked Cigarettes	10.6
Marijuana	12.3
Uppers	13.6
Downers	12.8
Tranquilizers	13.8
Opiates	13.9
Cocaine	14.1
Hallucinogens	14.1
Inhalants	12.5
First Injected	
Heroin	14.1
First Dependent	
Marijuana	12.8
Cocaine	14.5
Heroin	16.0

TABLE 11 MEAN AGE OF ONSET BY GENDER		
	Male	Female
Alcohol	11.2	11.5
Tobacco	10.7	10.2
Marijuana	12.1	12.2
Inhalants	12.5	11.7
Cocaine	14.5	13.7
Heroin	14.3	14.3

Problem behaviors associated with alcohol and marijuana use

Among the youths in the sample, marijuana caused more problems than alcohol with regards to missing school/work, suffering grades, and driving under the influence (see Table 12). For example, almost 12 percent of the juveniles reported that their grades or jobs got worse because of marijuana, whereas 9.7 percent related these problems to alcohol. On the other hand, almost fifteen percent (14.5%) reported that alcohol created more problems associated with getting along with other people compared to 6 percent who used marijuana. In addition, 15 percent said that they got depressed, sad, or more irritable because of alcohol but only 11 percent attributed these symptoms to marijuana. No differences were observed in the reporting of friend's use of marijuana or alcohol.

TABLE 12 PROBLEM BEHAVIORS ASSOCIATED WITH ALCOHOL AND MARIJUANA USE		
	Alcohol % (N=197)	Marijuana % (N=197)
Often missed school/work due to hangover	7.3	8.7
Went to school/work high/drunk	12.9	20.5
Grades/job worse	9.7	11.8
Caused problems to get along with other people	14.5	5.5
Most of your friends use	87.1	87.4
Gave up doing things you like	13.7	14.2
Drove car or did any other dangerous thing	16.1	18.9
Get sad, depressed or more irritable	15.3	11.0
Caused important problems	7.8	5.7
Got into trouble more than other people	8.6	9.0

DSM-III-R diagnosis of Dependency

The DSM-III-R category for substance dependence specifies nine criteria for substance use. A diagnosis of substance dependence is based on an individual's meeting any three of the following nine criteria.

Diagnostic criteria for Psychoactive Substance Dependence

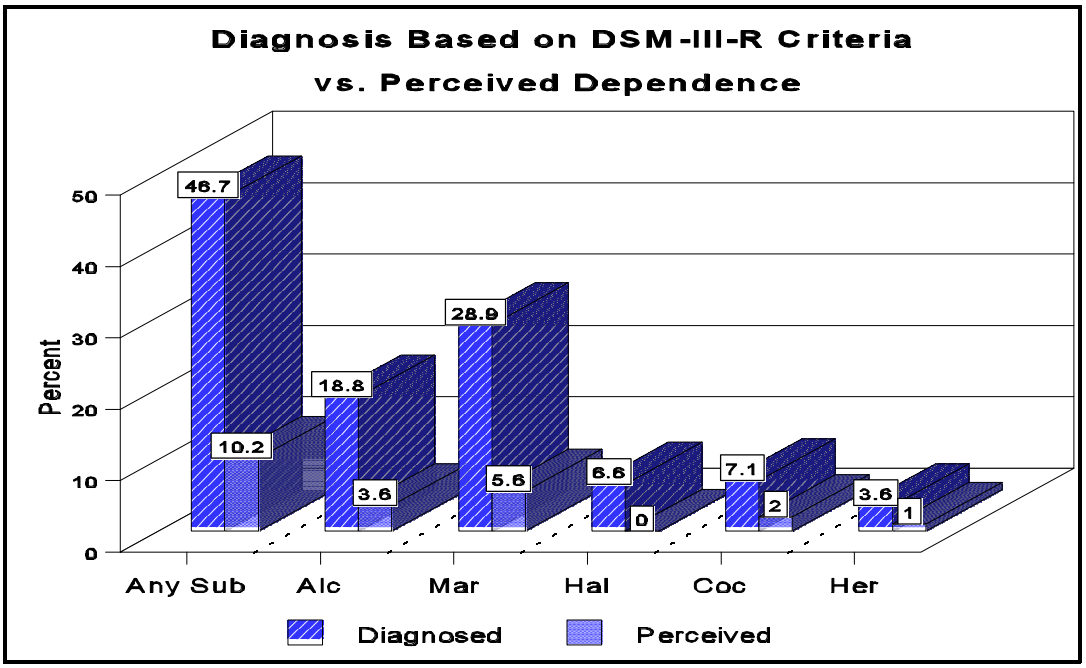
A. At least three of the following:

(1) substance often taken in larger amounts or over a longer period than the person intended
(2) persistent desire or one or more unsuccessful efforts to cut down or control substance use
(3) a great deal of time spent in activities necessary to get the substance, taking the substance, or recovering from its effects
(4) frequent intoxication or withdrawal symptoms when expected to fulfill major role obligations at work, school, or home, or when substance use is physically hazardous
(5) important social, occupational, or recreational activities given up or reduced because of substance use
(6) continued substance use despite knowledge of having a persistent or recurrent social, psychological, or physical problem that is caused or exacerbated by the use of the substance
(7) marked tolerance: need for markedly increased amounts of the substance in order to achieve intoxication or desired effect, or markedly diminished effect with continued use of the same amount
(8) characteristic withdrawal symptoms
(9) substance often taken to relieve or avoid withdrawal symptoms

B. Some symptoms of the disturbance have persisted for at least one month, or have occurred repeatedly over a longer period of time.

The results of the diagnosed dependency according to DSM-III-R criteria and self-perceived dependency on alcohol and other substances are presented in Table 13. Close to half (47%) of the juveniles met the criteria for dependence on any substance. Marijuana, followed by alcohol, cocaine, and hallucinogen accounted for the majority of dependency. About 29 percent were dependent on marijuana, 19 percent dependent on alcohol, 7 percent dependent on cocaine, and another 7% on hallucinogens. Only 3.6 percent were opiate and 2.5 percent upper dependent. None of the juveniles were diagnosed as dependent on downers, tranquilizers, or inhalants. Although 38 percent of the juveniles were diagnosed as dependent on at least one drug, only eight percent *perceived* themselves to be drug dependent. In most cases, juveniles failed to realize or perceive their dependency. In summary, one out of two arrestees was diagnosed as dependent, only one in ten recognized their dependency (see figure 2).

TABLE 13 DEPENDENCE ON ALCOHOL AND OTHER SUBSTANCES: DIAGNOSED VERSUS SELF-REPORT		
Substance	Diagnosed Dependent % (N=197)	Perceived Dependent % (N=197)
Alcohol	18.8	3.6
Marijuana	28.9	5.6
Uppers	2.5	0.5
Downers	0.0	0.0
Tranquilizers	0.0	0.0
Opiates	3.6	2.0
Cocaine	7.1	2.5
Hallucinogen	6.6	0.0
Inhalants	0.0	0.5
Any drug	38.1	8.1
Alcohol or any drug	46.7	10.2



[Figure 2]

Characteristics of juvenile and diagnosis of dependence

Table 14 displays the association between arrestee characteristics and dependence based on DSM-III-R diagnosis. It appears from the data that:

- Female juvenile arrestees were significantly less likely to be alcohol dependent than male arrestees.

- Arrestees in the younger age category (11 - 14) and the older age categories (17 -18) were more likely to be alcohol dependent. The arrestees ages 15-16 tend to be drug dependent however, this association was not statistically significant.

- African Americans were less likely to be alcohol dependent than whites, hispanics, or others ($p<.05$).

- Juveniles enrolled in school were more likely to be (though not significant) alcohol dependent than those who were not attending school. No significant relationship was detected between drug dependency, school status, and living arrangements.

- Arrestees who had higher numbers of sex partners (>3) last year were (though not significant) more likely to be drug dependent than those with very few or no partners.

TABLE 14
CHARACTERISTICS OF YOUTH AND DEPENDENCE DIAGNOSIS

	Alcohol Dependent (%)	Drug Dependent (%)
Gender		
Male	37.1	38.2
Female	20.4*	37.9
Age		
11-14	44.0*	31.1
15-16	19.7	43.3
17-18	39.4	34.5
Race		
African American	20.0*	46.2
White	28.6	38.4
Hispanic	22.2	35.0
Other	70.0	36.8
Currently in school		
In school	30.4	38.1
Not in school	27.3	39.0
Age First Alcohol Use		
10 or Under	30.8	39.3
11-12	32.1	43.4
13-14	12.0*	33.3
15-16	71.4	21.4
Age First Tobacco Use		
10 or Under	28.6	33.8
11-12	34.9	42.6
13-14	8.3	37.5
15-16	50.0	33.3
Age First Marijuana Use		
10 or Under	37.5	39.1
11-12	28.8	38.9
13-14	22.9	44.2
15-16	57.1	28.6
Living arrangements		
With both parents	31.8	33.3
Other	29.4	38.9
# of Sex Partners Past Yr		
None	33.3	26.5
1-2	31.3	37.8
3+	28.1	44.9

* $p<.05$

Treatment History and Perceived Need

As shown in Table 15, seventeen percent of the youths reported receiving any type of treatment in the past. Of those, 3.6 percent had drug treatment, 2.5 percent had alcohol treatment, and 11.2 percent had both drug and alcohol treatment. Only about 9 percent of the sample reported that they were presently in treatment. About 85 percent of the youths did not perceive the need for any type of treatment despite the fact that close to a half (47%) were diagnosed as dependent (shown in Table 13).

TABLE 15
PREVIOUS AND CURRENT TREATMENT STATUS OF JUVENILES

	% (N=197)
Received TX in past	17.3
Type of previous TX	
Drug	3.6
Alcohol	2.5
Drug & Alcohol	11.2
Currently in drug & alcohol TX	8.6
Perceived need for drug/alcohol TX now	
No need	85.2
Yes, drug only	5.1
Yes, alcohol only	4.1
Drug and alcohol	5.6

Table 16 shows the perceived tx need and current treatment status among the juveniles diagnosed as dependents. Of all the *alcohol dependent* juveniles, 68 percent neither realized the need for treatment nor were in treatment, 21.6 percent perceived the need for treatment but were not in treatment, and only 10.8 percent were currently in treatment. On the other hand, out of all the *drug dependent* juveniles, 73.3 percent neither realized the need for treatment nor were in treatment, 17.3 percent perceived the need for treatment but were not in treatment, and only 9.3 percent were presently in treatment. Thus, it appears that drug dependent juveniles were less likely than alcohol dependent juveniles to acknowledge their treatment needs (73.3% vs. 67.6%). Alcohol dependent youths were more likely to perceive treatment needs and be enrolled in current treatment than drug dependent youths. Only 20% of all drug dependents had received some type of treatment in the past.

TABLE 16 PERCEIVED NEED AND CURRENT TX STATUS OF JUVENILES WHO ARE DIAGNOSED AS DRUG AND ALCOHOL DEPENDENT		
	% Alcohol Dependent (n=37)	% Drug Dependent (n=75)
Not in TX/don't perceive TX need	67.6	73.3
Not in TX/perceive TX need	21.6	17.3
Currently in TX	10.8	9.3
Received TX in the past	18.9	20.0

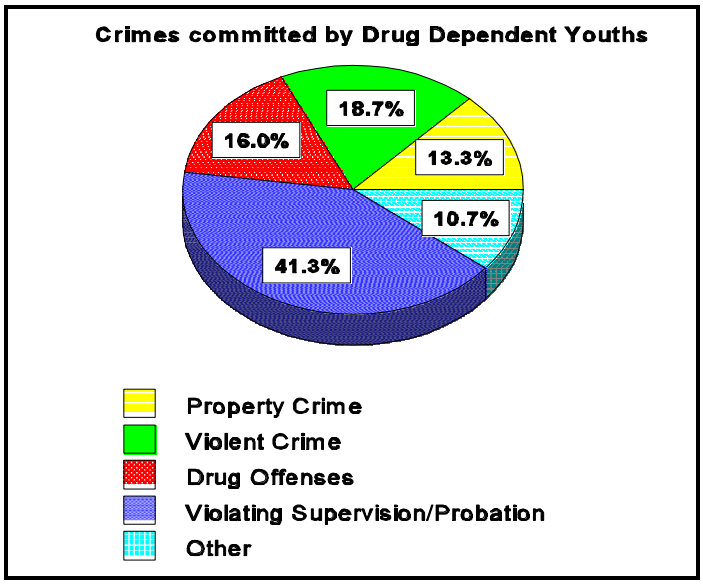
Involvement with Criminal Justice

Charges at arrest

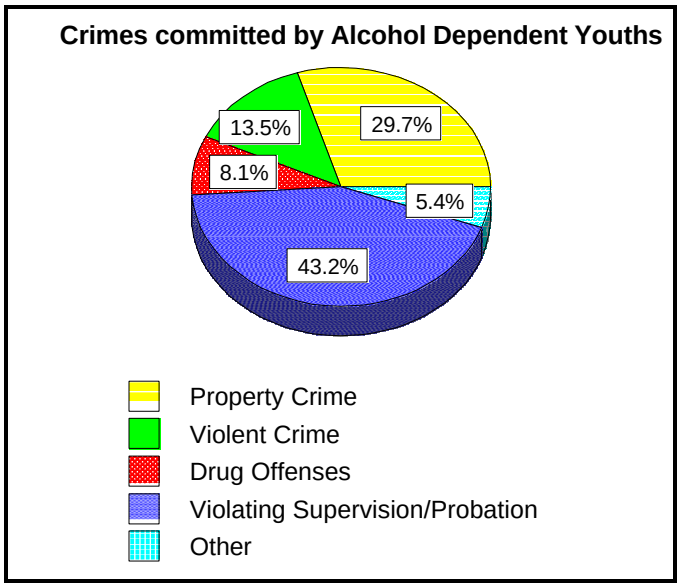
As shown in Table 17, older youths were more likely to be charged with violent offenses, such as manslaughter, robbery, and homicide, while younger youths (16 and under) were more likely to be charges with "violation of supervision/ probation." Data also show that as the youths grow older they engage more in drug related crimes. Female juveniles were more likely to be charged with violation of supervision/probation and less likely to commit serious crimes such as violent, drug, and property offenses than male juveniles. Hispanics and African Americans were charged more with property crimes, whereas whites were more likely to be charged with violent and drug related crimes ($p<.10$). Juveniles charged with drug offenses had a higher percentage of positive drug tests than juveniles charged with other offenses.

TABLE 17 CHARGE AT ARREST AND DEMOGRAPHIC CHARACTERISTICS					
	Property %	Violent %	Drug %	Other %	Probation %
Age					
11-14	15.6	22.2	2.2	8.9	51.1
15-16	23.7	9.3	5.2	9.3	52.6
17-18	27.3	23.6	14.5	7.3	27.3
Gender**					
Male	26.4	22.7	9.1	7.3	34.5
Female	18.4	8.0	4.6	10.3	58.6
Race***					
White	15.2	16.8	8.0	8.0	52.0
Hispanic/Black/Other	36.1	15.3	5.6	9.7	33.3
Positive Drug Test*					
Yes	15.4	11.5	13.5	11.5	48.1
No	25.2	18.2	4.9	7.7	44.1
* p<.10 **p<.05 ***p<.01					

The next two charts show the types of crimes committed by *alcohol* and *drug* dependent juveniles. It appears that more property crimes were committed by alcohol dependent arrestees,



[Figure 3]



[Figure 4]

whereas more violent and drug related crimes were committed by drug dependent arrestees ($p<.01$). Among all the alcohol dependent juveniles, 29.7% were charged with property crime,

13.5% with violent crime and 8.1% with drug related crimes. Among all the drug dependent juveniles, about 19% were charged with violent crimes, 16% with drug related crimes, and 13% with property crimes. Felony charges were higher among drug dependent arrestees.

Site Variation

Overall, a larger percentage of Farmington Bay Youth Center (FBYC) detainees admitted past month use of illicit drugs than detainees at Salt Lake Detention Center (SLDT). Past 30 day use of marijuana, mushrooms, crystal methamphetamine, and LSD were much higher for FBYC than SLDT (see Table 18). On the other hand, the lifetime use of marijuana, cocaine, and inhalants were higher for SLDT.

TABLE 18
LIFETIME AND PAST-MONTH USE OF SUBSTANCES BY PROJECT SITES

	Current Substance Use		Lifetime Substance Use	
	SLDT	FBYC	SLDT	FBYC
Alcohol	63.5%	60.0%	94.9%	96.7%
Tobacco	74.5%	81.7%	83.9%	93.3%
Marijuana	59.9%	80.0%*	95.6%	93.3%
Cocaine	15.3%	13.3%	39.4%	35.0%
Heroin	2.2%	3.3%	7.3%	10.0%
Mushrooms	1.5%	6.7%*	23.4%	30.0%
Crystal Meth	10.2%	16.7%	30.7%	31.7%
Inhalants	2.2%	1.7%	24.1%	5.0%
LSD	9.5%	13.3%	47.4%	46.7%
Downer/Barb	2.2%		5.8%	

*p=.05

The treatment need based on DSM-III-R diagnosis of dependence by site are presented in Table 19. Half of the detainees interviewed at FBYC met the criteria for dependence and demonstrated treatment need. A slightly lower percentage of dependence (45%) was demonstrated by SLDT. The largest differences in percentage of dependence were observed for hallucinogens.

TABLE 19 SUBSTANCE DEPENDENCE AND TREATMENT NEEDS BY PROJECT SITES		
	SLDT (N=137)	FBYC (N=60)
Alcohol Dependence	19.7	16.7
Marijuana Dependence	29.9	26.7
Upper Dependence	1.5	5.0
Opiates Dependence	2.2	6.7
Cocaine Dependence	5.1	11.7
Hallucinogen Dependence	3.6	13.3
Any Drug Dependence	36.5	41.7
Any Substance Dependence	45.3	50.0

Predicting the risk factors for alcohol and marijuana dependency

Table 20 shows the results of logistic regression for predicting the alcohol and marijuana dependency among the juvenile arrestees. For analysis, only dichotomous variables were used. Variables included in the model were gender, age, race, school status, living arrangements and age of first use of alcohol. Except for gender, none of them found to be statistically significant. The model reveals that:

- Juveniles below the age of 15 were 1.7 times more likely to be alcohol dependent than juveniles age 15 and over.
- Juvenile males were about 2.5 times more likely to be alcohol dependent than females ($p<.05$).
- Whites were about 1.5 times more likely to be alcohol dependent than African American or Hispanics.
- Arrestees who were not in school were 1.4 times more likely to be alcohol dependent than those enrolled in school.
- Arrestees who live with both parents were 1.7 times more likely to be alcohol dependent than those living with others.
- Arrestees who initiate first alcohol use below the teen years (below 12) were 1.5 times more likely to be alcohol dependent than those who initiate it later.

TABLE 20 PREDICTORS OF ALCOHOL AND DRUG DEPENDENCY						
	Alcohol Dependence			Marijuana Dependence		
Variable	B	Odds-Ratio	Significance	B	Odds-Ratio	Significance
Age (15-18 vs. 11-14)	-.53	.58 (1/OR=1.7)	.24	.19	1.2	.65
Sex (male vs. female)	.92	2.51	.02	.22	1.2	.51
Black/Hip. Vs. White	-.42	.67 (1/OR=1.5)	.36	.13	1.14	.72
Not in school vs. in school	-.34	.71 (1/OR=1.4)	.51	-.16	0.86 (1/OR=1.2)	.71
Other vs. Living with both parents	-.52	.59 (1/OR=1.7)	.30	-.03	0.96 (1/OR=1.0)	.95
First use of alcohol (<12 vs. >12)	.43	1.5	.37	.52	1.7	.19
	Model chisquare=9.94 (P=.13)			Model chisquare=2.68 (P=.85)		

DISCUSSION

This report describes the pattern of drug use, substance dependence, and delinquent behavior among 197 arrestees in Utah.

Marijuana and alcohol were the two substances most widely used by juvenile arrestees. Both life time and current use of these substances were very high. The difference between lifetime and current uses are relatively small, indicating that these substances are not being used experimentally by juveniles. The extent of use of marijuana and alcohol are about the same with respect to life time (94.9% vs. 94.4%), past year (92.3% vs. 90.8%), and past 30-day use (69.5% vs. 65.4%). It is particularly alarming to observe that one in five detainees used cocaine in the prior month compared to one in fifty in general student population. (Bahr, 1995).

The prevalence of heroin use is also high among this population. Eight percent of juveniles admitted using heroin during their lifetime. More than half of the juveniles perceive that smoking and snorting heroin are currently increasing and one out of ten juveniles knows someone who has snorted heroin.

This arrestee population reveals initiating substance use at an extremely early age. More than one-quarter (28%) reported smoking cigarettes before their 9th birthday. Alcohol was initiated at an average age of 11. The use of marijuana is most likely to be initiated at age 12, and opiates, cocaine, and hallucinogens at age 14. This clearly depicts the theory of progression or developmental stages in adolescent drug use. According to this theory, adolescents' involvement in drugs begins with alcohol, progresses to marijuana, and finally to the third stage of "hard" drugs (Kandel, 1975). The second stage seldom takes place before or by skipping over the first stage. Correspondingly, without prior use of marijuana, adolescents rarely progress to the last stage of using hard drugs. Research on stages of substance abuse also suggest that heavy alcohol and marijuana use precedes cocaine and heroin use (Kandel and Faust, 1975). The arrestees in our sample started to use marijuana at about age 12. Those who had tried cocaine initiated use at a mean age of 14, which is about two years after initiating alcohol or marijuana.

The average age of drug injection tended to begin early among the arrestees (14 years). However, caution is advised when drawing conclusions, since only 7% of the juveniles reported injecting drugs in their lifetime. Several studies have found the average age of initial intravenous drug use to be in the late teens (Graham and Wish, 1994) and early twenties (Kang et al., 1993) while the average age of this study sample is less than 16 years.

Juveniles admitted behavioral problems due to substance use. Fourteen percent reported that alcohol and marijuana use caused them to give up things they liked. Nine percent said that they got into trouble more than other people because of their use. Among the youths in the sample, marijuana caused more problems than alcohol with regards to missing school/work, suffering grades, and driving under the influence. For example, almost 12 percent of the youth reported that their grades or job got worse because of marijuana, whereas 10 percent related these problems to alcohol. One in five (20.5%) went to school high on marijuana compared to 13% who went to school drunk. They also acknowledged that the majority (87%) of their friends use alcohol and

marijuana. This particular finding confirms Sutherland's "differential association" theory. According to this theory, a person's behavior is influenced by the behavior pattern of the group that he/she mostly socializes with. The extent of peer use implies the opportunity to experiment and the peer pressure to use substances.

More than one-quarter (26.7%) of the juveniles tested positive for at least one drug. Marijuana accounted for majority of them (22.1%). However, self reported use of marijuana in the last three days was higher than it was detected by urinalysis (34% vs 22.1%). This could be explained by the longer length of time between arrest and testing or probable adulteration. Limitations of urinalysis are widely known (Feucht et al., 1994). Primary among these is the narrow time period for which drug use can accurately be detected. In addition, specimens can easily be diluted or adulterated, even when collected under careful supervision (Feucht et al., 1994).

The DSM-III-R category for substance dependence specifies nine criteria for substance use . A diagnosis of substance dependence is based on an individual's meeting any three of the nine criteria. The treatment need can be inferred from this dependence. Close to half (47%) of the juveniles met the criteria for dependence on any substance. Marijuana, followed by alcohol, accounted for the majority of dependency. About 29 percent were dependent on marijuana, 19 percent dependent on alcohol, 7 percent dependent on cocaine, and another 7 percent on hallucinogens. In most cases, juveniles failed to realize or perceive their dependency. They were not aware of the extent of their addictions. Only one in 10 perceived or recognized their dependency. Consequently, more than two thirds of the juveniles (>67%) neither realized the need for treatment nor were in treatment. Among those who were found to be dependent, less than 20% had received some kind of treatment in the past.

The relationship of dependence and delinquent behavior was also explored. It appears from the analysis that more property crimes were committed by alcohol dependent arrestees, whereas more violent and drug related crimes were committed by drug dependent arrestees ($p<.01$). Among all the alcohol dependent juveniles, 29.7% were charged for property crime, 13.5% for violent crime and 8.1% for drug related crime. Among all the drug dependent juveniles, about 19% were charged for violent crime, 16% for drug related crime, and 13% for property crime. Felony charges were higher among drug dependent arrestees.

In the juvenile facilities, the majority of the detainees were there because they had violated home supervision, also know as a "pick-up order." Utah has a large number of youths in state custody. The state or its contractors provide foster care, residential group homes, semi-secure, and secure facilities for these youths. Many youths placed in custody go "AWOL" from their assigned placement due to various reasons. When it is discovered that a youth is illegally absent from their court-ordered placement, the "pick-up order" is issued. This order gives authorization to search and return the youth to the nearest juvenile detention center. Once the youth are returned to the detention center, most new charges that the youth might have committed are secondary to the pick-up order. The new charges are decided later. While new charges are being determined, the youth must remain in detention.

Data by site were also analyzed. Overall, a larger percentage of detainees at Farmington Bay Youth Center (FBYC) admitted past month use of illicit drugs than detainees at Salt Lake Detention Center (SLDT). Past 30-day use of marijuana, mushrooms, crystal methamphetamine, and LSD were much higher for FBYC than SLDT (Table 18). On the other hand, the lifetime use of marijuana, cocaine, and inhalants were higher for SLDT. Half of the detainees interviewed at FBYC met the criteria for dependence and demonstrated treatment need. A slightly lower percentage of dependence (45%) was demonstrated in SLDT. The largest differences in percentage of dependence were observed in hallucinogens. As observed, the use of mushrooms and LSD were much higher among detainees of FBYC. Anecdotal information from local youths suggest that they perceive the use of naturally grown substances (such as mushrooms) as "less harmful" for the body. It is provided by nature and considered safe.

Factors that may predict the development of substance abuse dependency were also examined in a regression model. Factors included in the model were gender, age, race, school status, living arrangements and age of first use of alcohol. Except for gender, none of them found to be statistically significant. This result suggests that juvenile males are about 2.5 times more likely to be alcohol dependent than females ($p<.05$). Though not significant, the model also indicated that arrestees who live with both parents are 1.7 times more likely to be alcohol dependent than those living with others. This particular finding was interesting since other studies have found that youths living with both parents are less likely to use substances than those living in other family structures. This observation of a high use rate among juveniles who live with parents could be due to parental use of substances and parental approval toward substance use.

One major limitation of this study is that data are based on a convenience sample rather than probability. As a result, the findings may not be representative of the overall juvenile justice population. However, study findings generally confirm those established in earlier research. Acquiring information necessary for random sampling was difficult. In some cases the flow of arrestees was so low that it required interviewers to interview the available pool.

CONCLUSION

As a recipient of this Center for Substance Abuse Treatment (CSAT) award, the Division conducted the SANTA study as part of the State Demand and Needs Assessment Studies. National Institute of Justice research projects have shown that criminals are among the most serious drug abusers and suggest that drug use trends among criminals are grossly underestimated by current national surveys. The traditional survey methods seriously undercounts this "hidden" population (Kandel, 1991). The higher likelihood of drug users being homeless, school absentees, or residents of institutions make household and high school surveys likely to underestimate the prevalence of substance use. This study for the first time provided a measure to understand the substance use and treatment needs among juvenile population in Utah.

The results presented here clearly indicate significant use of illegal substances among the juvenile arrestee population. Policy implications derived from these findings are discussed below.

1. Treatment Resource Allocation:

The information gained from this study is extremely valuable for understanding the extent of drug use, abuse, and associated treatment needs among the arrestee population in Utah. This is the first time such an endeavor has been undertaken. These findings will help policy makers allocate treatment resources according to needs rather than based on population proportion. These data will also be instrumental in obtaining additional treatment funds to serve this population. Data by site enhance our knowledge about regional variations in drug use among youths. No two communities are alike as to the extent and nature of drug use. This will increase our ability to target those youths at risk by tailoring the prevention, intervention, and treatment services.

2. Increase youth access to treatment services:

Despite the extensive drug and alcohol use, the majority of the juveniles in our sample had no experience with any kind of substance abuse treatment. This group would be highly unlikely to seek treatment on their own and without treatment they are extremely likely to continue their drug use and criminality after release (Lipton, 1995). Drug treatment offers an opportunity to reduce the high rate of recidivism among this population and to slow their revolving door cycle through the criminal justice system. Strong empirical evidence has been accumulating showing that treatment lowers crime and health costs as well as the associated social and criminal justice costs (CALDATA 1994; Lipton 1995; Harrison, et al. 1997). The data reveal that 41% of juveniles spent considerable amounts of money weekly to support their drug habit. These data provide insight for treatment programs and will be shared with other agencies. Sufficient linkages between detention centers and community treatment programs need to be built to make treatment more accessible to youths.

3. Point of location for Prevention and Treatment:

Even though the length of stay of youth offenders in the detention centers is relatively short,

centers should be considered as an opportunity to inform and educate adolescents about substance use and its negative consequences. A majority of the youths in this study failed to realize the extent of their addiction and consequently underestimated their treatment needs. This failure could be due to a lack of knowledge regarding substance abuse and dependence or the fear of stigma attached to drug use and treatment. In either case, intensive attention needs to be given to educate them on these issues. The majority of juveniles in this sample were attending school at the time of study which suggests they could benefit from school-based programs. In addition, staff should be trained to assess and detect early symptoms of drug abuse and to make appropriate referrals.

4. Prevention and intervention should start early:

Prevention programs need to start early because of the observed early age of onset of such extensive drug use among this population. Waiting until the high school years may be too late for many serious offenders. By that time, their characters are already formed and often resistant to change. Intervention should begin as early as the elementary school years (OJJDP, 1994). Prevention should focus on delaying the onset of alcohol use because it is considered as the "gate way" to other drugs.

5. Intervention programs must address multiple problem behaviors:

The juveniles in this study experienced multiple problems. They were involved in drug use, criminal behavior, interpersonal conflict, academic failure, sexual activity, and other problem behaviors. Intervention programs should address these related multiple problems and provide services that deal with those issues.

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